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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,359	03/18/2002	David Coates	MERCH 2392	9088

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EXAMINER

CALEY, MICHAEL H

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 03/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/088,359	Applicant(s) COATES ET AL.	
	Examiner Michael H. Caley	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12 and 17-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 and 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 23 is objected to because of the following informalities: Failure to comply with Patent Rule 1.75 (e)(1). It is unclear as to which part of the claim language, if any, is the preamble, for example. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 12, and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al. (U.S. Patent No. 5,619,352 "Koch") in view of Chung et al. (U.S. Patent No. 5,995,184 "Chung") and Van Haaren et al. (WO 96/06379 "Van Haaren").

Regarding claims 1, 3, 20, Koch discloses an optical compensator for a liquid crystal display having:

at least one O plate retarder (Column 9 Table 1), and

at least one A plate retarder (Column 9 Table 1).

Koch fails to disclose the A plate retarder as helically twisted with a twist angle of more than 90 degrees in which the helical pitch in the twisted A plate retarder is less than 250 nm.

Chung, however, teaches the use of a helically twisted A plate retarder as a means of improving the optical quality of the compensator while simplifying the construction process (Column 2

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lines 28-57, Column 6 lines 29-43). Van Haaren teaches such a twisted A plate retarder as having a twist angle of more than 90 degrees, or 360 degrees, and a pitch less than 250 nm (Page 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the A plate disclosed by Koch as a twisted A plate as taught by Chung and Van Haaren. Such a construction method would have been motivated by a desire to improve the optical quality of the compensator and reduce the cost of producing the compensation film. It would have been advantageous to construct the A plate as a twisted layer as taught by Chung in order to benefit from the improved uniformity of optical properties compared to a stretched film (Chung, Column 1 line 61-Column 2 line 28) while reducing the construction cost (Column 2 lines 28-57). For example, such a twisted layer may be constructed with a single substrate to eliminate the need for a second alignment layer.

Additionally, one would have been motivated to construct the compensator having the proposed pitch and twist angle to realize a compensator having a maximum number of gray levels (Van Haaren, Page 1 lines 13-27). Van Haaren teaches compensators having pitches less than 250 nm and twist angles of greater than 360 degrees to achieve maximum gray levels (Page 4 lines 20-30). Van Haaren teaches additional gray levels as advantageous in an optical compensator as a means of reducing the angle dependence of color and contrast in viewing a liquid crystal display.

Regarding claim 2, Koch discloses a typical O-plate such as used in the various example compensators as having an average tilt angle in the O-plate retarder from 2 to 88 degrees (Column 7 lines 8-23).

Regarding claims 4 and 17, Koch discloses the O-plate retarder such as used in the various example compensators as varying monotonously as proposed (Column 7 lines 8-22).

Regarding claims 5, 6, 18, and 19, Koch discloses the O-plate retarder such as used in the various example compensators as having the proposed maximum and minimum tilt angles (Column 7 lines 8-22).

Regarding claim 7, Koch fails to disclose the proposed thickness of the twisted A-plate. Van Haaren, however, teaches such a thickness as appropriate for the twisted A plate (Page 4).

One would have been motivated to construct the compensator having the proposed thickness to realize a compensator having a maximum number of gray levels as taught by Van Haaren (Page 1 lines 13-27 and Page 4 lines 20-30). Van Haaren teaches additional gray levels as advantageous in an optical compensator as a means of reducing the angle dependence of color and contrast in viewing a liquid crystal display.

Regarding claim 8, Koch fails to disclose the proposed retardation of the twisted A-plate and/or the O plate. Van Haaren, however, teaches such a retardation along with a method to vary the retardation of the layer by varying the thickness (Page 4).

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One would have been motivated to construct the compensator having the proposed retardation to realize a compensator having a maximum number of gray levels as taught by Van Haaren (Page 1 lines 13-27 and Page 4 lines 20-30). Van Haaren teaches additional gray levels as advantageous in an optical compensator as a means of reducing the angle dependence of color and contrast in viewing a liquid crystal display.

Regarding claim 9, Koch discloses the use of an O plate having the proposed structure (Column 10 lines 51-59).

Regarding claim 10, Koch fails to disclose the twisted A plate as having the proposed structure. Chung, however, teaches such a structure for the twisted A plate (Column 5 lines 14-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the A plate disclosed by Koch as a twisted A plate as taught by Chung. Such a construction method would have been motivated by a desire to improve the optical quality of the compensator and reduce the cost of producing the compensation film. Chung teaches such a polymerizable liquid crystal solution as preferable to reduce the intrinsic tilt angle of the liquid crystal director at the liquid crystal/air interface. Such a low tilt characteristic is necessary to maintain a proper planar orientation of the liquid crystal of the A plate as taught by Chung (Column 2 lines 28-43).

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Regarding claim 12, Koch discloses the use of the optical compensator within a liquid crystal display having the proposed structure (Figure 11).

Regarding claim 21, Koch discloses the optical compensator as further having one or two negative C plate retarders (Column 9 lines 5-23).

Regarding claim 22, Koch fails to disclose the O plate or A plate retarders as having a negatively birefringent substrate having the optical properties of a negative C plate retarder. Van Haaren, however, teaches such an A plate compensator (Page 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the A plate disclosed by Koch as a twisted A plate as taught by Van Haaren. Van Haaren teaches such optical properties as advantageous in an optical compensator as a means of reducing the angle dependence of color and contrast in viewing a liquid crystal display.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Haaren.

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Regarding claim 23, Van Haaren discloses a twisted A plate with a helical pitch of 250 nm or less. The phrase “for use as negative C retarder” is not considered to further limit the claim and only represent intended use.

Regarding claim 24, Van Haaren discloses the twisted A plate as composed of an oriented polymerized composition as proposed (Pages 4 and 5).

Regarding claims 25 and 26, Van Haaren discloses the compensation film as used in a liquid crystal display (Abstract).

Response to Arguments

Applicant's arguments with respect to claims 1-10, 12, and 17-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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